Deep Draft Vessel Costs

Introduction

The deep draft vessel costs shown herein are provided for use by the corps of Engineers planners in studies to determine the potential benefits of harbor improvement projects. It is the latest in a series of revised or updated vessel costs published every one to two years since the 1960's. This set of costs updates the FY00 Costs, published June 2000.

The accompanying Vessel Operating Cost worksheets show costs, dimensions, typical service speeds and immersion rates for a large number of vessel types and sizes. Corps studies usually require determination of vessels of specific intermediate sizes. To calculate dimensions of intermediate sizes, use the formulas for relating deadweight to draft and other dimensions shown in appendix B To calculate vessel costs, linear interpolation of costs is appropriate to determine the operating cost for a vessel different than the sizes given. The vessel dimensions in the cost tables are all in feet. All weights (deadweight, fuel consumption, tpi) are in metric tonnes.

2002 Explanatory Notes

Vessel Capital Costs

Corps studies contemplate investment in new harbor works; therefore, all vessels are priced as new and are amortized at the discount rate (6 1/8% for FY02) used to evaluate Corps harbor projects. This is because a 50-year project life would require the vessel fleet to be renewed. Replacement costs for all types of vessels have been based on a ten-year average to dampen any sudden upward or downward shift in prices. The only exception to this rule is double- hull tankers, since they have a relatively short historical base. Tankers continue to be grouped into double-hull and non-double hull, since double hull is the only configuration allowable by OPA 90, and the single hull vessels calling U.S. port will have to be phased out by 2010. Since few U.S. flag vessels have been built in recent years, replacement costs for these vessels have been based on a cost differential applied to the replacement cost for foreign flag vessels. The FY02 ten-year averages reflect continued decreasing construction costs for most vessel types.

Fixed Operating Costs. These costs have been reanalyzed for 2002 price levels. Ship operators and ship management companies were surveyed for the tanker and bulker costs, while containership lines were surveyed for similar or corresponding costs. The Foreign Vessel Operating costs are based on an open registry, which is a flag of convenience with ITF (International Transport Workers' Federation) approved crews. U.S. Vessel Operating Costs reflect the higher crew costs incurred with U.S. crews and domestic based affiliations. Vessel replacement costs continue to constitute the largest percentage of operating costs (about 50%) followed by crew costs (about 21%). The vessel operators continue to search for ways to reduce their operating costs, as competition

remains strong, with rates, revenues and profits under pressure through industry efforts to minimize costs and respective rates. Changes in hourly rates for "at sea" and "in port" operating costs from FY1999 to FY2002 are presented in Appendix C and D.

Vessel Characteristics The vessel characteristics remain unchanged. They are being updated in FY02 and will be ready in FY03. Regression equations for the vessel characteristics, which include length, beam, draft, immersion rate, horsepower, and speed, can be found in Appendix A. Standard errors of the estimates and R-squared measurements have been provided to facilitate risk and uncertainty analysis. Although the regression equations were estimated based on metric measures and presented with conversion factors in the appendix, the vessel dimensions in the cost tables are all in feet. All weights (deadweight, fuel consumption, tpi) are in metric tonnes.

Tanker characteristics and equations are the same regardless of single or double hull characteristics. In addition, the regression estimates continue to be inaccurate for the post-Panamax (beam > 106') containerships characteristics because of relatively few data points, so actual vessel characteristics were used in place of the regression estimates.

Fuel costs Fuel consumption rates remained the same. Heavy fuel Oil (HVO) process and Marine diesel (MDO) are both up slightly reflecting the recent surge in prices after historic lows. The prices used to produce the fuel costs were collected by MSI. The tables for revised fuel report the data from Marine Strategies International (MSI) for eight bunkerage locations: Houston, Los Angeles, Philadelphia, Rotterdam, Durban, Fujairah, Singapore and Tokyo Bay . One change this year is that a 5-year rolling average has not been computed, because data for 2000-2001 was not collected for the model. Refinements in bunkerage cost computations and tracking are being planned for FY03 and will include tracking bunkerage at more locations (up to 45 locations) and calculating weighted averages by ship routes. At that time, a 5-year moving average will be re-employed in the calculation of bunkerage costs to dampen any market volatility.

The bunkering locations, and annual prices with adjustments are presented in appendix A.